Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C. 20554

In the Matter of *Call Authentication Trust Anchor*	CG Docket No. 17-97

COMMENTS OF NEUSTAR, INC.

I. INTRODUCTION AND SUMMARY

Neustar, Inc. ("Neustar") hereby submits the following comments in response to the Federal Communication Commission's ("FCC" or "Commission") *Call Authentication NOI.*[1] An important part of the Commission's ongoing efforts to protect consumers from ever increasing and more sophisticated illegal robocalling, the *Call Authentication NOI* addresses the Secure Telephone Identity Revisited ("STIR") and Signature-based Handling of Asserted information using toKENs ("SHAKEN") framework, which enables an extremely promising technique for detecting and deterring many unlawful robocallers.

As an industry leader in the development of solutions to mitigate unwanted robocalls and Caller ID spoofing and as a significant contributor to the development of the STIR/SHAKEN framework, Neustar urges the Commission to expedite the framework's deployment. This framework is the only viable means specified today to help identify illegitimate spoofed calls before they reach customers and then provide customers with notifications so they can make informed decisions whether to answer calls. STIR/SHAKEN also includes important capabilities to assist law enforcement in tracing and finding the source of unwanted calls.

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[1] *Call Authentication Trust Anchor*, WC Docket No. 17-97, Notice of Inquiry, FCC 17-89 (*"Call Authentication NOI"*).

Although Neustar considers it premature for the Commission to mandate that the industry deploy STIR/SHAKEN, the Commission should facilitate prompt adoption of the framework. Specifically, the Commission should consider establishing timelines and milestones for service provider and vendor development as well as for testing and validation of STIR/SHAKEN implementations.

Further, the Commission should leverage existing governance authority and policy administration models for STIR/SHAKEN to expedite its deployment. For example, the Commission could direct the North American Numbering Council ("NANC") to create a new subcommittee, with the requisite expertise, that would serve as the governance authority for the STIR/SHAKEN framework. As the Commission's Federal Advisory Committee for North American Numbering Plan ("NANP") number administration, the NANC seems well situated to perform this governance authority function.

Likewise, the Commission should task the Pooling Administrator ("PA") with the STIR/SHAKEN policy administration responsibility.[2] The PA has the requisite policy expertise, technical and administrative capabilities, and Commission-approved neutrality to perform this function, given its responsibilities for NANP resources and telephone number allocation. In addition, the PA is directly subject to oversight by the Commission and the NANC, which represents all telecommunications stakeholders, including service providers of all technologies and sizes, consumers, and state regulators. Based on internal Neustar prototyping efforts to validate the recently published ATIS-1000080 technical standard, "SHAKEN: Governance Model and Certification Management," the required technical expertise for STIR/SHAKEN policy administration is well within the domain of the PA's functions and existing FCC contract.

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[2] Neustar's contract to serve as the PA runs until January 2018. The STIR/SHAKEN policy administration responsibility could be added to the current contract immediately and included in any competitive bidding for the follow-on PA contract.

Finally, the Commission should permit the STIR/SHAKEN framework to be deployed quickly but also evolve broadly to best protect consumers. Consistent with this approach, entities allowed to sign calling party information should not just be limited to established service providers with an Operating Company Number ("OCN"), and any required certificates covering telephone numbers or ranges of telephone numbers should be minimized at this juncture. A strict OCN requirement would likely restrict the universe of entities permitted to authenticate calls, while an unconstrained telephone number coverage requirement would likely delay STIR/SHAKEN implementation given some additional operational challenges this approach would present.

II. DISCUSSION

A. The Commission Should Expedite Deployment of the STIR/SHAKEN Framework.

There is no serious dispute that deployment of the STIR/SHAKEN framework developed by the Internet Engineering Task Force ("IETF") and the Alliance for Telecommunications Industry Standards ("ATIS"), respectively, would benefit the public.[3] IETF and ATIS have devoted considerable time and effort developing this framework through a transparent and collaborative process in an effort to solve the very problems with which the Commission is grappling – namely, stopping illegal robocalling and Caller ID spoofing at the source. The

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[3] *See, e.g.,* Comments of Comcast Corporation, Docket No. 17-59, at 6 (July 3, 2017) ("the SHAKEN and STIR framework currently represents the most promising avenue for addressing illegal spoofed robocalls in a holistic manner …"); Comments of Professional Association for Customer Engagement, CG Docket No. 17-59, at 8 (filed July 3, 2017) (noting that "[t]he SHAKEN & STIR protocols are an admirable first step to reducing the incentive for spoofers to engage in harmful activities …"); Comments of Telcordia Technologies, Inc. d/b/a iconectiv, Docket No. 17-59, at 4 (July 3, 2017) (because "implementation of STIR/SHAKEN will allow for identifying the point-of-entry in the U.S. network for every call," worldwide deployment of the framework "would dramatically mitigate the international robocall problem"); Comments of the United States Telecom Association, Docket No. 17-59, at 13 (July 3, 2017) (implementation of the SHAKEN/STIR framework will be "beneficial and effective in identifying illegal robocalls").

STIR/SHAKEN framework addresses these problems by providing an indispensable tool to securely authenticate, digitally sign, and verify calling party numbers,[4] which, as the Commission correctly observes, will help "authenticate telephone calls and thus deter illegal robocallers."[5] And, while service provider call blocking, under certain objective circumstances, would help stem unlawful robocalling and Caller ID spoofing, the deployment of caller authentication standards through STIR/SHAKEN focuses more on identifying bad actors.

Like any industry standard, however, the value of the STIR/SHAKEN framework will not be realized unless and until it is widely deployed. Widespread deployment of the framework would enable providers, as well as consumers, to identify unlawful calls more quickly and accurately.

Neustar believes that an industry mandate to deploy STIR/SHAKEN would be premature at this juncture. However, the Commission should establish aggressive, yet realistic deployment targets for the industry to meet. These targets should minimally include timelines and milestones for service provider and vendor development, testing, and validation of STIR/SHAKEN implementations.

In the near term, the Commission could direct service providers and vendors to participate in the ATIS Robocalling Testbed, a virtualized testbed to validate and advance the

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4 *See, e.g.,* Robocall Strike Force Report, at 5 (Oct. 26, 2016) ("The SHAKEN/STIR framework provides a process whereby "telephone calls and the telephone numbers associated with the calls, when they are originated in a service provider network[,] can be authoritatively and cryptographically signed by the authorized service provider, so that as the telephone call is received by the terminating service provider, the information can be verified and trusted"), *available at* https://transition.fcc.gov/cgb/Robocall-Strike-Force-Final-Report.pdf;

5 *Call Authentication NOI* ¶ 1.

STIR/SHAKEN framework launched by ATIS in February 2017.[6] The ATIS Robocalling Testbed facilitates interoperability testing by providing configurations to test STIR/SHAKEN implementations, and participation is available to both ATIS and non-ATIS member companies.[7] Successful validation and interoperability testing is a critical first step to full deployment of the STIR/SHAKEN framework in an expeditious manner.

B. The Commission Should Leverage Existing Governance Authority and Policy Administration Models to Oversee the STIR/SHAKEN Framework.

In identifying the parties involved in administering STIR/SHAKEN and in defining their responsibilities, the Commission should utilize existing governance authority and policy administration models. For example, Neustar believes that both the NANC and the PA are well positioned to perform these specified functions.[8] These entities have the necessary expertise and existing infrastructure to oversee the STIR/SHAKEN framework and to assume their roles without delay.[9]

Governance authority for the STIR/SHAKEN framework could rest with the NANC, which could be directed to establish a new working group to perform this oversight function. As

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6 Press Release, *ATIS Launches Industry Testbed to Advance Mitigation of Unwanted Robocalling and Called ID Fraud* (Feb. 2, 2017), *available at* https://sites.atis.org/insights/atis-launches-industry-testbed-advance-mitigation-unwanted-robocalling-caller-id-fraud/.

7 *See* Robocall Strike Force Report, at 6 (April 28, 2017), *available at* http://www.atis.org/01_strat_init/Robocalling/docs/Ex%20Parte-Strike-Force-Report-2017-04-28-FINAL.PDF.

8 *Call Authentication NOI* ¶¶ 14-27.

9 Consistent with the model that governs numbering today, the Commission has ultimate authority for the authentication standards for telephone calls to combat unlawful robocalling and Caller ID spoofing. *Call Authentication NOI* ¶ 48. However, consistent with that authority, the Commission can delegate governance responsibilities to the NANC and the PA just as it has done with other numbering issues.

the Commission's Federal Advisory Committee for NANP number administration,[10] the NANC's mission is to "foster the efficient and impartial administration" of the NANP and "to ensure that our numbering system evolves with [the] 21st century."[11] Governance of the STIR/SHAKEN framework subject to the Commission's oversight would be consistent with the NANC's mission. Likewise, tasking the NANC with governance authority for call authentication would fall within the NANC's general responsibilities, which include providing input "on numbering policy and technical issues," resolving "disputes as directed by the Commission," and otherwise providing "guidance" to the NANPA and PA as directed by the Commission.[12]

The FCC has recognized previously the unique role played by the NANC in overseeing the implementation of the Commission's numbering regime. For example, the FCC has relied upon the NANC to address issues related to number portability, including establishing interconnected VoIP provider porting procedures,[13] and improving the general porting process.[14] The Commission reasoned that "the NANC is best situated to monitor the continued

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10 *Telcordia Technologies, Inc. Petition to Reform Amendment 57 and to Order a Competitive Bidding Process for Number Portability Administration*, Order, 31 FCC Rcd 8444, 8445, n.6 (2016).

11 Public Notice, *FCC Announces Plans to Re-Charter New North American Numbering Council*, DA 17-751 (Aug. 9, 2017) *available at* http://transition.fcc.gov/Daily_Releases/Daily_Business/2017/db0809/DA-17-751A1.pdf. The FCC seeks "applications from every sector of the telecommunications industry, as well as members representing regulators, standards bodies and consumers" to serve on the new NANC. *Id.*

12 Public Notice, *FCC Announces Renewal of the North American Numbering Council and Requests Nominations for Membership*, 30 FCC Rcd 9911 (2015).

13 *Numbering Policies for Modern Communs., IP-Enabled Servs.*, Report and Order, 30 FCC Rcd 6839, ¶ 60 (2015).

14 *Local Number Portability Porting Interval and Validation Requirements*, Opinion, 29 FCC Rcd 7370, 7370 (2014).

effectiveness of the provisioning process flows, and make recommendations when changes are needed."[15] Such reasoning applies equally to oversight of the STIR/SHAKEN framework.

With respect to the STIR/SHAKEN policy administrator role, Neustar recommends that the PA perform this function. With responsibility for the neutral administration of NANP resources, the PA could readily assume STIR/SHAKEN policy administration responsibility. As the Commission correctly recognizes, the PA can readily determine which telephone number ranges are controlled by which entities, by virtue of their telephone number allocation function.[16] And, given the existing relationship between the PA, the FCC, NANC, and individual service providers, a proven governance model for oversight, reporting, and change management already exists that can support implementation of the STIR/SHAKEN framework.[17] The PA can move quickly to implement STIR/SHAKEN requirements under its existing contract; going forward, and with the benefit of early experience, more formal and long-term requirements could be incorporated into future PA procurements.

The SHAKEN policy administrator role requires a certain level of technical expertise to build and operate the requisite "token" management infrastructure. Neustar has already developed an internal prototype to validate its understanding of the recently published ATIS-1000080 technical standard, "SHAKEN: Governance Model and Certification Management." The results of this prototype development suggest that the required technical expertise and associated infrastructure for STIR/SHAKEN policy administration are well within the domain of the current PA.

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15 *Id.*

16 *Call Authentication NOI* ¶ 21.

17 *See id.* ¶ 25 (noting the "benefits in modeling authentication governance on existing arrangements …").

Further, to achieve wide deployment and robust caller authentication capabilities, Neustar urges the Commission to encourage in parallel the existing work at the IETF STIR Working Group to integrate STIR solutions into Time Division Multiplexing ("TDM")/SS7-based networks. As the Commission correctly notes, the framework was developed for calls carried over an IP network using the Session Initiation Protocol ("SIP").[18] Because many voice calls are transported over TDM networks today and with the ubiquitous deployment of IP networks, particularly in rural areas, many years away, the application of STIR/SHAKEN in non-SIP environments should not be ignored.

Related published work by ATIS to extend caller authentication across TDM/SS7-based networks was quite thorough and highlighted the technical difficulties in making this solution a reality.[19] However, the work at the IETF on an out-of-band STIR architecture offers a viable solution. The Commission should continue to encourage the development of the STIR/SHAKEN framework across multiple communications platforms, while recognizing that such development is a complicated problem that will take time to solve.

C. The Commission Should Permit the STIR/SHAKEN Framework to Evolve Broadly to Best Protect Consumers.

Like any widely deployed industry standard, the STIR/SHAKEN framework will continue to evolve with technology and the ever-changing techniques of illegal robocallers. Thus, the Commission should refrain at this juncture from taking any action that could delay deployment of the STIR/SHAKEN framework or stifle its evolution. Consistent with this approach, the Commission should reject proposals to: (1) limit entities allowed to sign calling

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18 *Id.* ¶¶ 38-40.

19 Initial Strike Force Report, "Technical Report on Use of the ISUP Screening Indicator for Conveying Caller ID Authentication Information," Section 1.10.3 (Oct. 2016), *available at* https://www.atis.org/docstore/product.aspx?id=28295.

party information to established service providers with OCN(s); and (2) broadly define the scope of a service provider's certificate to cover individual telephone numbers or telephone number ranges.

1. Entities allowed to sign calling party information should not be limited to established service providers with OCN(s).

The proposal to only permit service providers with an OCN to sign calling party information will prove to be too restrictive. Limiting entities allowed to sign calling party information to established service providers with an OCN will exclude entities that generate a significant volume of calls and want to authenticate calls with high attestation (trust).

For example, a large enterprise call center making outbound IP calls from a Private Branch Exchange (PBX) would be unable to obtain an OCN but nonetheless would like its calls to be authenticated and highly trusted, especially in cases where the enterprise is routing calls across multiple service providers. Likewise, an interconnected VoIP provider that obtains numbering resources from a third party may have no need for an OCN but still wants its calls authenticated and highly trusted.

While the OCN could serve as a unique identifier for many service providers, its use could exclude a range of entities that will want to have their calls authenticated and trusted at a level comparable, for example, to consumers directly connected with their service provider originating switch. Consistent with Neustar's proposals above, the FCC should permit the PA and the NANC to develop appropriate criteria for entities allowed to sign calling party information, which could then be submitted to the Commission for approval.

2. The scope of authentication should initially be at the provider level and use of telephone number and telephone number range level authentication minimized.

The STIR/SHAKEN framework is currently predicated on the assumption that certificates will cover providers. Thus, requiring that the framework support certificates at the

telephone number and range level would likely delay implementation of the STIR/SHAKEN framework, given some additional operational challenges.

Of course, the framework is not and should not be carved in stone. Thus, there will be some use cases where it may be advisable that certificate coverage be expanded to include specific telephone numbers or ranges of telephone numbers. But such expansion on any broad scale should occur as the STIR/SHAKEN framework evolves and not be a requisite of the initial deployment.

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Respectfully submitted,

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